F0810xH

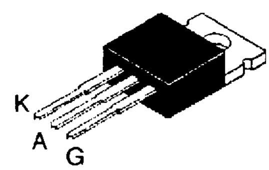
FAST SWITCHING SCR

FEATURES

- $I_{T(RMS)}$ = 8A
- V_{DRM} = 200V to 800V
- tq = 20µs max

DESCRIPTION

The F0810xH series of SCRs uses a high performance MESA GLASS PNPN technology. These parts are intended for high frequency switching applications.



TO220
non-insulated
(Plastic)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	Tc= 95°C	8	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)	Tc= 95°C	5.1	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	tp = 8.3 ms	88	A
		tp = 10 ms	80	
I^2t	I^2t Value for fusing	tp = 10 ms	32	A^2s
dI/dt	Critical rate of rise of on-state current I_G = 100 mA dI_G/dt = 1 A/µs.		100	A/µs
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C
Tl	Maximum lead temperature for soldering during 10s at 4.5mm from case		260	°C

Symbol	Parameter	Voltage				Unit
		B	D	M	N	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage T_j = 125°C	200	400	600	800	V

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THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	60	°C/W
Rth(j-c)	Junction to case for DC	3	°C/W

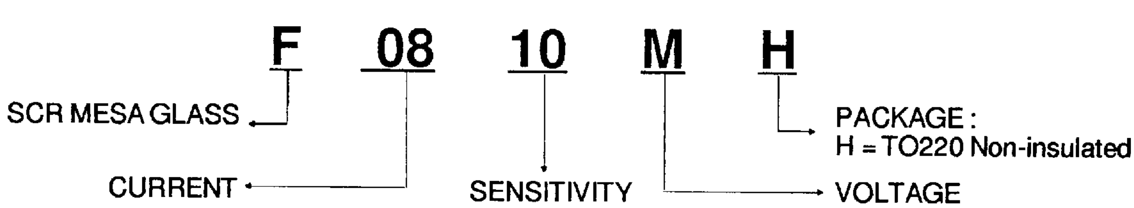
GATE CHARACTERISTICS (maximum values)

$P_{G\,(AV)}$= 0.5 W P_{GM} = 2 W (tp = 20 µs) I_{GM} = 2 A (tp = 20 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Sensitivity	Unit
				10	
I_{GT}	V_D=12V (DC) R_L=33Ω	Tj= 25°C	MIN	10	mA
			MAX	25	
V_{GT}	V_D=12V (DC) R_L=33Ω	Tj= 25°C	MAX	1.5	V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ	Tj= 125°C	MIN	0.2	V
tgt	V_D=V_{DRM} I_{TM}= 3 x $I_{T(AV)}$ dI_G/dt = 0.8A/µs I_G = 90mA	Tj= 25°C	TYP	2	µs
I_H	I_T= 250mA Gate open	Tj= 25°C	MAX	75	mA
I_L	I_G=1.2 I_{GT}	Tj= 25°C	MAX	150	mA
V_{TM}	I_{TM}= 16A tp= 380µs	Tj= 25°C	MAX	2	V
I_{DRM} I_{RRM}	V_D = V_{DRM} V_R = V_{RRM}	Tj= 25°C	MAX	5	µA
		Tj= 110°C	MAX	1.5	mA
dV/dt	V_D=67%V_{DRM} Gate open	Tj= 110°C	MIN	300	V/µs
tq	I_{TM}= 3 x $I_{T(AV)}$ V_R=35V dI/dt=25A/µs tp=100µs dV/dt=25V/µs V_D= 67%V_{DRM}	Tj= 110°C	MAX	20	µs

ORDERING INFORMATION



SGS-THOMSON MICROELECTRONICS

Fig.1 : Maximum average power dissipation versus average on-state current.

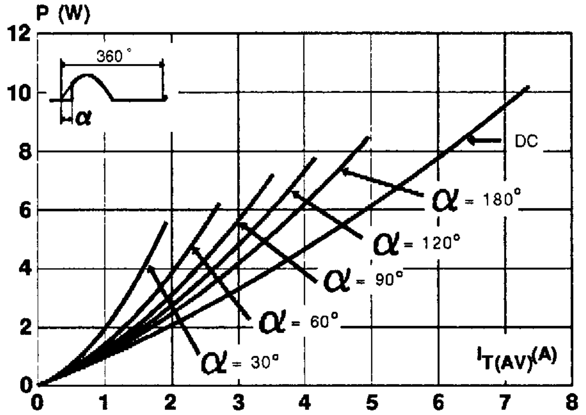


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

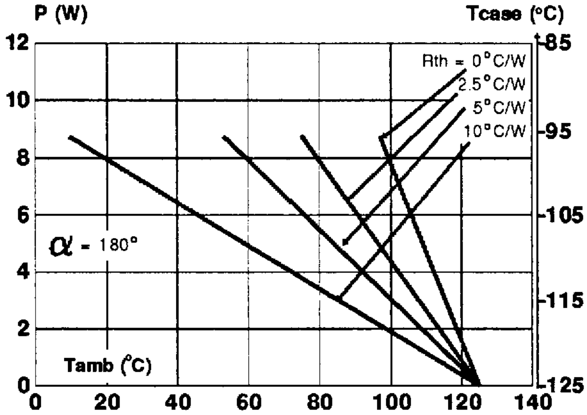


Fig.3 : Average on-state current versus case temperature.

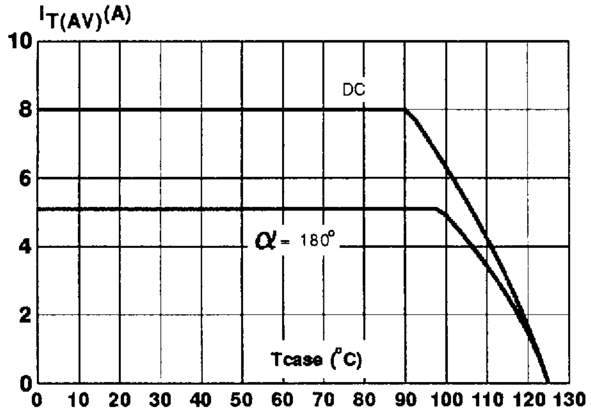


Fig.4 : Relative variation of thermal impedance versus pulse duration.

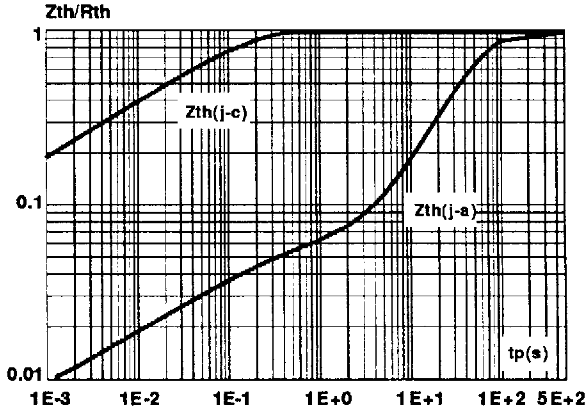


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

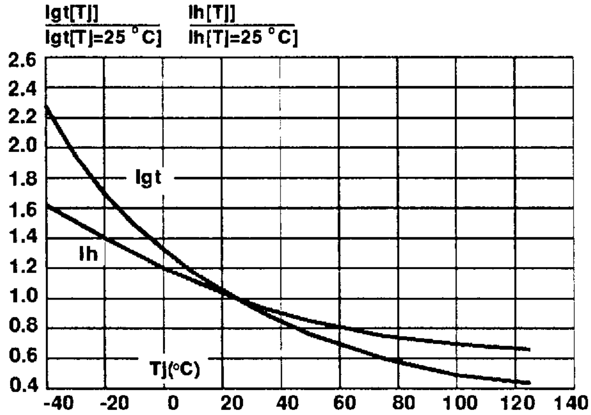


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

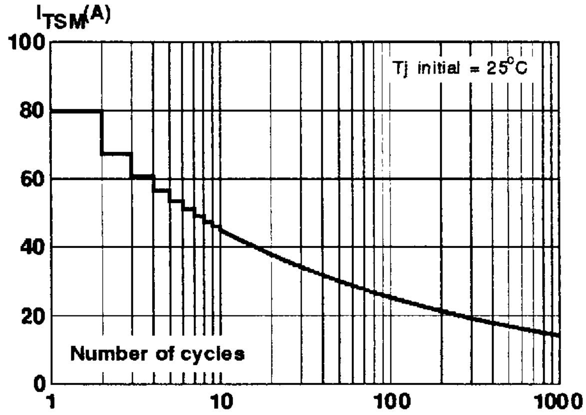


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ≤ 10ms, and corresponding value of I^2t.

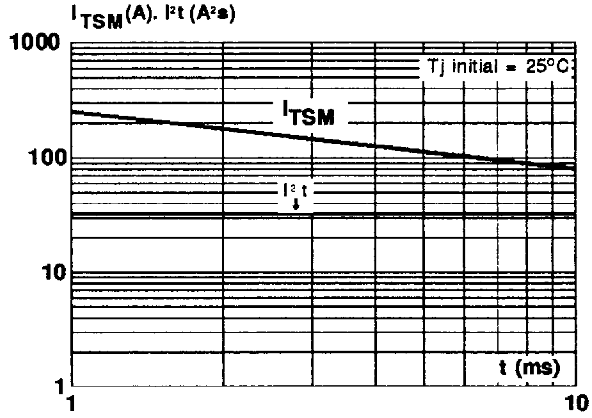
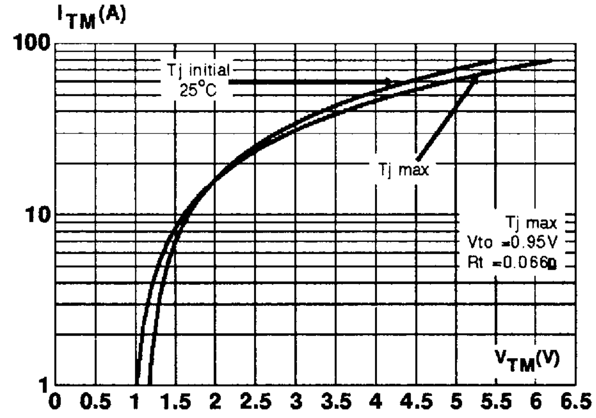
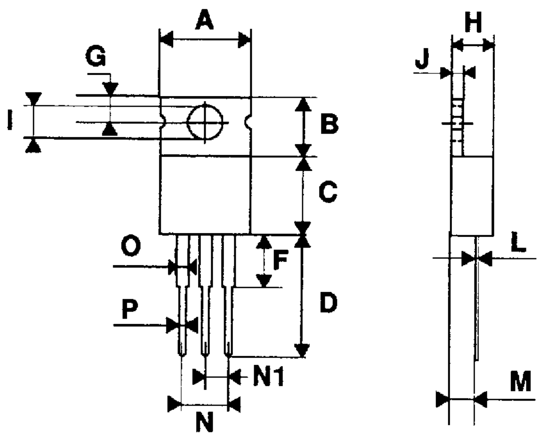


Fig.8 : On-state characteristics (maximum values).



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PACKAGE MECHANICAL DATA
TO220 Non-insulated (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A			10.3			0.406
B		6.3	6.5	0.248	0.256	
C			9.1			0.358
D		12.7			0.500	
F			4.2			0.165
G			3.0			0.118
H		4.5	4.7		0.177	0.185
I		3.53	3.66		0.139	0.144
J		1.2	1.3		0.047	0.051
L			0.9			0.035
M	2.7			0.106		
N			5.3			0.209
N1	2.54			0.100		
O		1.2	1.4		0.047	0.055
P			1.15			0.045

Marking : type number
Weight : 1.8 g